Serial No. 10/803,087
Docket No. PHCF-04015
HIR.096

REMARKS

Entry of this amendment is proper under 37 CFR §1.116, since no new issues are raised and the only claim amendments relate to the Examiner's revised rejection directed to the wording provided by the Examiner himself during the personal interview dated July 17, 2006. Moreover, Applicants request that the finality be withdrawn, since the previous claim amendments were completely based on the Examiner's choice of wording. If Applicants had been aware that the Examiner intended merely to re-word the existing rejection based o Okase, the amendments submitted herein would have been submitted instead of the previous amendment based on the Examiner's wording choice.

However, although the claims have been amended in an attempt to expedite prosecution, Applicants submit that the plain wording of the independent claims is not satisfied in the Examiner's latest interpretation of Okase, as discussed below.

Claims 1, 3-6, 8, 9, 11-14, and 16-20 are presently pending in the application, with independent claims 1, 6, 9, and 14 being amended for clarity and new claims 17-20 being added.

It is noted that Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1, 3-6, 8, 9, 11-14, and 16 stand rejected either under 35 USC §102(b) as being anticipated by US Patent 5,592,581 to Okase or, alternatively, under 35 USC §103(a) as unpatentable over Okase.

Applicants again respectfully disagree and submit that the rejection of record fails to meet the initial burden of a *prima facie* rejection.

THE CLAIMED INVENTION

As described in, for example independent claim 1, the present invention is directed to semiconductor film formation device. A reaction vessel includes a gas flow path to allow a

source gas to pass through, and a substrate mount site upon which to mount a substrate is provided in the gas flow path inside the reaction vessel along a side thereof and located along a first side of the reaction vessel. A heater is disposed along only a single side of said reaction vessel, outside of the reaction vessel on the first side of the reaction vessel along which is located the substrate mount site inside the reaction vessel. A cooling device is disposed along only a single side of the reaction vessel, outside of the reaction vessel on a second side of the reaction vessel. The second side is substantially directly opposite to first side of the reaction vessel where the heater is located. The cooling device controls an internal temperature of the reaction vessel in a first section of the gas flow path where the substrate mount site is located.

A thermal conductivity adjusting member is disposed between the reaction vessel and the cooling device. The thermal conductivity adjusting member allows the first section along the gas flow path where the substrate mount is located to have a thermal conductivity different from that of a second section along the gas flow path, in order to lower a thermal diffusion effect of the source gas in the first section.

In another aspect of the present invention, a semiconductor film formation device as described in, for example claim 6, includes a semiconductor film formation device including a reaction vessel that includes a gas flow path to allow a source gas to pass through and a substrate mount *site* on a side surface of the reaction vessel to mount a substrate in the gas flow path. The substrate mount site is on a first side of the reaction vessel.

A heater is disposed along only one side of the reaction vessel, outside of the reaction vessel on the same side of the reaction vessel as the substrate mount site is located (e.g., the first side), the heater thereby being close to the substrate mount site. A cooling device controls an internal temperature of the reaction vessel in a section of the gas flow path wherein the substrate mount site is located, the cooling device being disposed along only one side of the reaction vessel, outside of the reaction vessel on a second side of the reaction vessel that is substantially directly opposite to first side of the vessel where the heater is located.

A wall thickness of the reaction vessel is smaller in the section along the gas flow path

where the substrate mount site is located, thereby forming an interspace between the reaction vessel and the cooling device to lower a thermal diffusion effect of the source gas in the section of the gas flow at the location of the substrate mount site.

The prior art of record fails to satisfy the plain meaning of the description of even these independent claims, as that the language would be interpreted by one having ordinary skill in the art.

THE PRIOR ART REJECTIONS

The Examiner continues to allege that Okase either teaches or renders obvious the present invention defined by claims 1, 3-6, 8, 9, 11-14, and 16, as shown in Figure 7.

However, Applicants believe that even the wording of the claim amendments of the previous amendments clearly distinguishes from Okase, as follows.

Relative to independent claim 1, the "substrate mount site" 2 of Okase Figure 7 is clearly in the center of the reaction vessel 72, not along a first side. The rejection improperly considers the support stem as being the "mount site" for the substrate 2. However, one of ordinary skill in the art would not consider the support stem as being the "mount site" for substrate 2.

Moreover, the thermal conductivity adjusting member, which the Examiner considers to be the ceramic wool inside vessel 72 would not satisfy the plain meaning of the final claim limitation, since the void space of the ceramic wool would not cause a difference in diffusion effect of the source gas if for no other reason than that this material covers the entire reaction vessel 72. The Examiner has the initial burden to identify on the record how the thermal conductivity is different at the substrate site 2 in the center of the reaction vessel due to this ceramic wool material.

Hence, turning to the clear language of the claims, in Okase there is no teaching or suggestion of: "... a reaction vessel that includes a gas flow path to allow a source gas to pass through, a substrate mount site upon which to mount a substrate being provided in the gas flow path inside the reaction vessel, said substrate *mount site* being located *on a vessel*

surface of said reaction vessel, *along a first side of said vessel surface* thereof; a heater that is disposed outside of the reaction vessel on said first side along which the substrate mount site inside the reaction vessel is mounted; a cooling device that is disposed outside of the reaction vessel on a second side substantially directly opposite to the heater, said cooling device controlling an internal temperature of the reaction vessel in a first section of the gas flow path where the substrate mount site is located; and a thermal conductivity adjusting member that is disposed between the reaction vessel and the cooling device, wherein the thermal conductivity adjusting member allows the first section along the gas flow path where the substrate mount site is located to have a thermal conductivity different from that of a second section along the gas flow path, in order to lower a thermal diffusion effect of the source gas in the first section", as required by independent claim 1.

The additional clarification to the independent claims of the claim amendments above further distinguish from Okase.

More specifically, relative to amendments to the independent claims, the feature of the present invention wherein the heater and coolers are each disposed on only one side allows the temperature gradient to be formed in the direction vertical to the substrate surface as mounted in the reaction vessel. In Okase, the planar heat generating source 76 and the water cooling jacket 75 are respectively provided on both sides of the reaction vessel. This structure will cause equal temperature distribution in the reaction vessel, as described at lines 61-64 of column 1.

The feature described in the added claims 17-20 characterizes that the gas flow path is parallel to the upper surface of the substrate. In contrast, the gas flow in Okase is perpendicular to the upper substrate surface.

The remaining independent claims have similar language that clearly describes features that differ from the configuration shown in Okase.

CONCLUSION

In view of the foregoing, Applicant submits that claims 1, 3-6, 8, 9, 11-14, and 16, all the claims presently pending in the application, are patentably distinct over the prior art of

record and are allowable, and that the application is in condition for allowance. Such action would be appreciated.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned attorney at the local telephone number listed below to discuss any other changes deemed necessary for allowance in a telephonic or personal interview.

To the extent necessary, Applicant petitions for an extension of time under 37 CFR §1.136.

The Commissioner is authorized to charge any deficiency in fees, including extension of time fees, or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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Frederick E. Cooperrider
Registration No. 36,769

MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC
8321 Old Courthouse Road, Suite 200
Vienna, VA 22182-3817
(703) 761-4100
Customer No. 21254

CERTIFICATION OF TRANSMISSION

I certify that I transmitted via facsimile to (571) 273-8300 this Amendment under 37 CFR §1.116 to Examiner R. Zervigon on December 29, 2006.

Frederick E. Cooperrider
Reg. No. 36,769